1. ERROR MESSAGES

When one of the following message numbers appears on the display, the VTR is set to the auto OFF mode (stop) or its power is forcibily turned off.

Error No.	Details of Error	VTR Operation
E-11	When the cassette was inserted, the reel motor locked up for about 2.5 seconds or longer. When the cassette is ejected, the VTR is set to the auto OFF mode.	STOP
E-21	When the cassette was removed, the front loading motor locked up for about 4 seconds. When the cassette moves down again and the motor locks up again even if an attempt is made to remove the cassette, the VTR is set to the auto OFF mode if the cassette has moved down.	STOP
E-31	The loading mothr locked up for about 4 seconds when the cassette was loaded. If the motor lockes up even when the cassette is unloaded and loaded again, the cassette is ejected. The VTR is set to the auto OFF mode.	STOP
E-32	The motor locked up for about 4 seconds when the cassette was unloaded. The VTR is set to the auto OFF mode.	STOP
E-41	The FG (rotational speed) signal is not output from the cylinder motor.	STOP
E-42	The PG (phase speed) signal is not output from the cylinder motor.	STOP
E-43	The cylinder motor speed is abnormally high.	STOP
E-44	The cylinder motor speed is abnormally low.	STOP
E-51	The FG (rotational speed) signal is not output from the capstan motor.	STOP
E-52	The capstan motor speed is abnormally high.	STOP
E-53	The capstan motor speed is abnormally low.	STOP
E-61	The suply reel motor has locked up.	STOP
E-62	The take-up reel motor has locked up.	STOP
E-63	The supply reel motor speed is abnormally high.	STOP

Error No.	Details of Error	VTR Operation
E-64	The take-up reel motor speed is abnormally high.	STOP
E-65	Abnormal tension has been detected.	STOP
E-66	At the tape start or end, the short FF or, REW operation does not stop even after 7 or more seconds.	STOP
E-67	A check sum error was detected in the serial data communication between the syscon and servo.	STOP
E-68	In serial data communication between the syscon and servo, the data was fixed at low or high and the absence of data was detected.	STOP
E-69	A communication error was detected in the serial data between the syscon and servo when the power was turned on.	STOP
E-70	About an hour has elapsed after the fan motor stopped. The VTR forcibly turns off its power. ※1	Forced POWER OFF
E-71	The hear sensor was activated and an abnormally high temperature inside the VTR was detected.	Forced POWER OFF
E-72	Trouble in the solenoid drive circuitry was detected.	Forced POWER OFF
E-73	Trouble in the cleaning solenoid drive circuitry was detected.	Forced POWER OFF
E-BA	The input supply voltage dropped below the undercut voltage. ※2	Forced POWER OFF (*)

(*) The counter display flashes to provide a warning.

※ 1: The mark "S" displayed on the super impose of the LCD during stop the Fan Motor.

2: [Input DC voltage error detection]

• Under-cut voltage and warning level indicated as below.

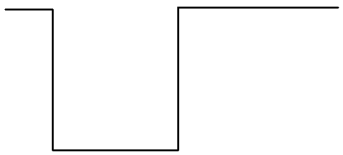
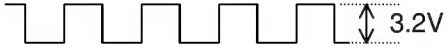
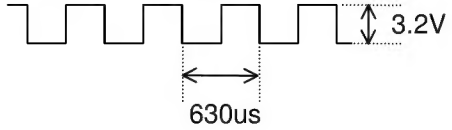
INPUT DC voltage, when the power on.	WARNING	Battery under-cut voltage
more than 13.0V	under 12.5V	12.0V
less than 13.0V	under 11.0V	10.6V

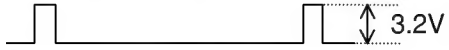
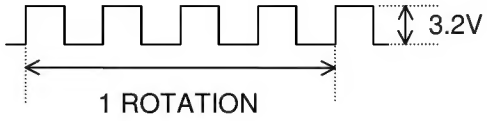
• The counteris flashed of the display on the warning mode.

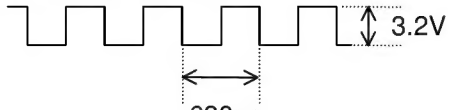
• If the Input DC voltage is more than 18.0V or under 10.2V, shut down the power compulsorily.

Note: The AC adaptor AJ-B75(optional accessory) must be used to supply the power. The Unit's operation can not be guaranteed if any other power supply is used instead.

2. AUTO OFF Check Point Table

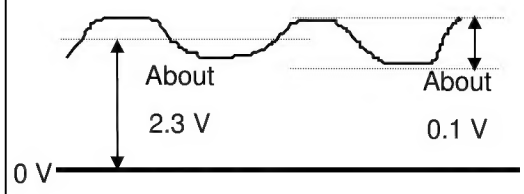
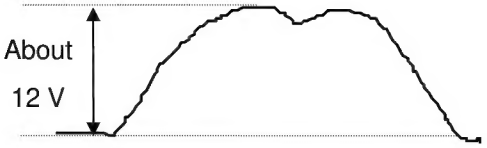
Message	Check Point	
DRUM_ROTATE_TOO_FAST E-43	 TP304 (CYL PG) TP305 (CYL FG)  	Check Cylinder PG at pin 66 of IC2201 (TP304) Check Cylinder FG at pin 67 of IC2201 (TP305) [In case of fast rotation] ● Check Cylinder flexible cable, connectors. ● Check CYL_ERR (TP204) voltage. Normal Rotation : TP204 = about 1.6 V During Full Acceleration : TP204 = 0 V EJECT mode : TP204 = 3.2 V V REF (IC2506-47 pin) = about 1.6 V fix If above voltage is incorrect, servo board is not correct. [In case of FG is correct and PG is incorrect] PG signal flow is incorrect. (Cylinder >> SERVO >> Servo)
CAP_ROTATE_TOO_FAST E-52	TP301 (CAP FG1)  	Check Capstan FG at TP301. ● Check acceleration command. Confirm the V REF (IC2503 - 47 pin) is about 1.6 V. Confirm the CAP_ERR (TP2203) voltage is about 1.0 V at STOP condition. →If it is incorrect, command signal flow is incorrect. ● Check the FG signal does not have noise. Check CAP_FG1,2 (TP301, 302) frequency is correspond with rotary speed. (about 1.58 kHz in REC/PB mode) → If it is incorrect, FG signal flow is incorrect.

DRUM_ROTATE_TOO_SLOW E-44	Check that the tape is stick with the Cylinder. Check that the tape is stick with a part of the tape pass and it causes the high tension. In this case tape may brake the Cylinder rotation. TP304 (CYL PG)  TP305 (CYL FG)  	Check Cylinder PGat pin 66 of IC2201 (TP304) Check Cylinder FG at pin 67 of IC2201 (TP305) [In case of FG is correct and PG is incorrect] PG signal flow is incorrect. (Cylinder >> Servo) [In case of both PG and FG are incorrect (Cylinder rotation is actually slow.)] (1) Check Cylinder Unit. Rotate the Cylinder in EJECT or UNLOAD condition. Check that the Cylinder smoothly rotate. If it is not smooth, the Cylinder unit is incorrect. (2) Check the rotary speed detection. Check that the CYL_FG_ (TP305) shows the pulse which is 4 pulses per rotation and the duty is 50 %, 0V/3.2V. If it is incorrect, FG signal flow is incorrect. (3) Check the Servo CPU outputs acceleration command. ● Check that acceleration voltage (less than 1.6 V) is output at CYL_ERR (TP204). ● Check that drive on signal which is 3.2 V at IC2506-49 pin. when it is 1.6 V, it is OFF mode. (4) Check the Reference voltage. Check that V REF (IC2506-47 pin) voltage is about 1.6 V. -→ If (3) or (4) is incorrect, surround circuit of CPU is incorrect. (5) Check that Power Supply voltage. Check that Drive IC voltage (VCC 3.2V : IC2506-54 pin) and Motor Drive voltage CYL_VM (IC2506-33 pin). The VM is positive voltage during Cylinder ON. → If it is correct, between Motor Drive and Cylinder is incorrect. Check connectors of Cylinder and Servo.

CAP_ROTATE_TOO_SLOW E-53	Check the tape is not stacked with the tape pass and tension is not high. Check the mechanical load of Capstan. TP301 (CAP FG1)  	Check Capstan FG at TP301. ● In case of the Capstan Motor overrunning even the message is too slow. The FG signal which is used to detect capstan speed is not supplied to the SERVO CPU. Check the frequency at CAP_FG1,2 (TP301, 302) is correspond with the rotary speed. (about 1.58 kHz, 0/3.2 V in REC/PB mode). Check the connectors of Capstan and Servo. ● In case of Capstan does not rotate. (1) Check the Servo CPU supplies the acceleration command. Check the V REF (IC2503 - 47 pin) is about 1.6V. Check the CAP_ERR (TP2203) is acceleration command. It is below than V REF voltage. If the capstan does not rotate, the CAP_ERR voltage should be 0 V. Check Drive ON signal (IC2503-49 pin) is 3.2V (rev) and 0V (fwd), 1.6 V (OFF). (2) Check the Power Supply voltage. Check the Drive IC power voltage (VCC 3.2V : IC2503 - 54 pin). Check Motor Drive voltage CAP_VM (IC2503 - 33 pin). (3) Check the Drive signal is supplied to Capstan motor. Check the connectors of Capstan and Servo. If above conditions are correct, motor or drive circuit is incorrect. (4) Check the TSR (IC2201 - 93 pin) and FRP (IC2201 - 84 pin) signals are inputted to CPU.

S_REEL_ROTA_TOO_FAST E-63		1. Check Reel FG waveform. Reel FG --- Refer to Reel FG Check 1 and Reel FG Check 2 Check the below signals input to Reel CPU ● S-Reel-FG (IC2101-1 & 8 pin) ● T-Reel-FG (IC2101-9 & 68 pin) ● S-Reel-FWD-L (IC2101-11 pin) ● T-Reel-FWD-L (IC2101-12 pin) [In case of abnormal condition] ● Check loosen of connector Servo board ● Reel FG Sensor, Reel Replacement 2. Check Reel Drive circuit. TP2403 (S REEL ERR) and TP2543 (T REEL ERR) on SERVO board --- less than 0.5 V
T_REEL_ROTA_TOO_FAST E-64		1. Check Reel FG waveform. Reel FG --- Refer to Reel FG Check 1 and Reel FG Check 2 Check the below signals input to Reel CPU ● S-Reel-FG (IC2101-1 & 8 pin) ● T-Reel-FG (IC2101-9 & 68 pin) ● S-Reel-FWD-L (IC2101-11 pin) ● T-Reel-FWD-L (IC2101-12 pin) [In case of abnormal condition] ● Check loosen of connector Servo board ● Reel FG Sensor, Reel Replacement 2. Check Reel Drive circuit. TP2403 (S REEL ERR) and TP2543 (T REEL ERR) on SERVO board --- less than 0.5 V

E-61 ● S REEL LOCK E-62 ● T REEL LOCK		1. Confirm the Reel offset adjustment. 2. Confirm the Reel Torque adjustment. 3. Confirm the Tension. 4. Check the Capstan is operated correctly (CAP mode). 5. Check the tape is beat 6. Check loosen of connector. 7. Check the Reel-Brake Solenoid are operated correctly.
S_FF/REW_TIMEOVER E-66	Check the problem occurred at tape beginning or tape, or other portion. ● FG1 (IC2901 - 1 & 7 pin) ● FG2 (IC2904 - 1 & 7 pin)	1. Check Reel FG Reel FG --- Refer to Reel FG Check 1 and Reel FG Check 2 [In case of abnormal condition] ● Check loosen of connector Servo board ● Reel FG Sensor, Reel Replacement 2. Check transparent tape detection. [In case of abnormal condition] ● Check loosen of connector Servo board ● Replace sensors. 3. Check the tape is not bent.

Fig 1 REEL Position Detect		Rotate the REEL motor in EJECT mode and check the following waveform. Servo board P2035 - 16 TH1+ 14 TH1- 12 TH2+ 10 TH2- 8 TH3+ 6 TH3- P2034 - 16 SH1+ 14 SH1- 12 SH2- 10 SH3+ 8 SH3+ 6 SH3-
Fig2 REEL Drive Waveform		Select T or S_REEL_TRQ on the MENU, and rotate the REEL and confirm the following waveform is like Fig. 2. Servo board P2035 - 13 TM3 9 TM1 19 TM1 13 SM3 9 SM1 17 SM2

3. DIAG MENU OPERATIONS

- Display the Software version
- Display the Hour Meter

The units system software version display and hour meter displays can be viewed on the DIAG menu.

<To transfer from a Normal mode to the DIAG mode>

(1). Set the unit to the JOG mode.

Note : Remember that the mode cannot be transferred in the shuttle mode.

(2). Press the DIAG (SHIFT + REC) buttons. (This cannot be done by remote control)

The hour meter display appear on the VTR 1 and VTR 2 monitor screens.

(3). Turn the Search Dial to move to an item.
Turn it clockwise (FWD) to move down and counterclockwise (REV) to move up.

DIAG-MENU HOUR METER		
<VTR 2>		
* H00	OPERATION	10000H
H01	DRUM RUN	10000H
H02	TAPE RUN	10000H
H03	THREADING	10000T
H11	DRUM RUN r	10000H
H12	TAPE RUN r	10000H
H13	THREADING r	10000T

Hour Meter Display

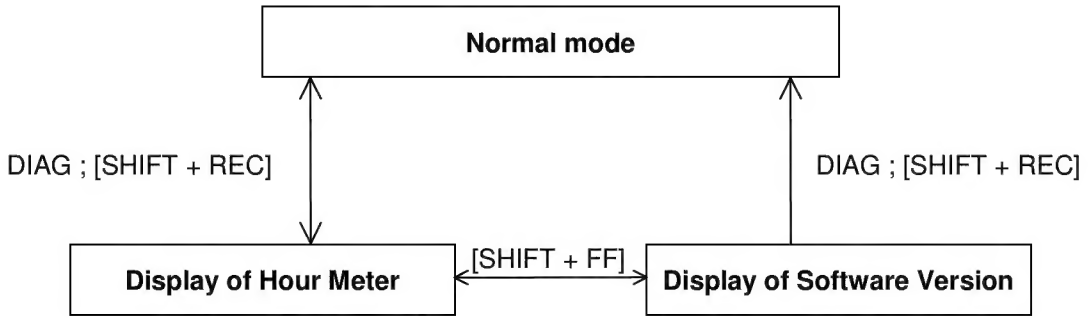
DIAG-MENU	
<VTR 1>	
DISPLAY	Ver<1.00-00>
AV-SYSCON	Ver<1.00-00>
SBC	Ver<1.06-00>
CYLINDER	Ver<1.00-00>
REEL	Ver<1.00-00>
END	

Version Display

<To display the software version>

(1). Press the SHIFT + FF button on VTR 2 side.
The display changes from hour meter to version.

[Display Mode]



- Press the DIAG (SHIFT + REC) buttons, then move to normal mode from the DIAG mode.

Note: Software version of KEYBOARD is displayed instead of DISPLAY at VTR2 side.

4. HOW TO RESET THE HOUR METER

1. Make an Eject condition.
2. Make a short circuit between TP33007 and TG33008 on the DIGITAL 2 P. C. Board.
3. Press the DIAG (SHIFT + REC) buttons. The hour meter displays appear on the VTR 1 and VTR 2 monitor screens.
4. Set the cursor to mark "r" indicated item (item H11 to H13).

※ The Hour Meter indication can reset individually, which are DRUM RUN r, TAPE RUN r, and THREADING r.

5. Press the reset button (VTR 1 and VTR 2 side follow your request), then appeared message as indicated as below.

<Case of select the DRUM RUN r>

HOUR NETER INIT SET
<VTR 1>
DRUM RUN r OK?
YES <PLAY> / NO <STILL>

※ When press the "PLAY" button on the VTR 2 side then execute the reset function.
When press the "STILL" button on the VTR 2 side then cancel the reset command.

Details of the hour meter display are given below.

Item		Data	Description
No.	Display	Display	
H00	OPERATION	00000H ⋮ 999999H	The period of time during which the power has been supplied since it was turned on is displayed in 1-hour increments.
H01	DRUM RUN	00000H ⋮ 999999H	The period of time during which the drum has been rotation is displayed in 1-hour increments.
H02	TAPE RUN	00000H ⋮ 999999H	The tape travel duration in the fast forward, rewind, play, search (JOG, VAR, SHTL), recording or editing mode (but not in the STILL mode with JOG, VAR and SHTL) is displayed in 1-hour increments.
H03	THREADING	00000H ⋮ 999999H	The number of times the tape has been threaded or unthreaded is didplayed in 1-time increments.

5. Service Menu Information

< Condition >

1. The Control Switch is set to "LOCAL" side on the Key Panel.
2. Set the unit to Jog mode.

< To transfer from normal mode to Service Menu mode >

1. Press the "ENTRY" + "EDIT" button so that the SET UP menu is displayed on the LCD display and then press the "ENTRY" + "REW" + "FF" button of the VTR 1 side and "REW" + "FF" button of the VTR 2 side simultaneously so that the Main menu of Service menu is displayed.

```
SERVICE-MENU
VTR1      No. A00

* A00  :  SERVO ADJUST
  B00  :  RF ADJUST
  b00  :  RF ADJUST (DV)
  C00  :  EQ ADJUST
  c00  :  EQ ADJUST (DV)
  D00  :  VIDEO ADJUST
  E00  :  SYSTEM ADJUST
  END
```

MAIN Menu

2. Move the star mark " * " by search Dial and select the item on the Main menu.
3. Press the "IN" button, then open the Adjustment Menu follow the selected item (A00 to E00) on the Main menu.

Note: The contents of each Adjustment menu, which are described on behind page.

• Press the "ENTRY" + "EDIT" button on the Main menu condition, then escape from Service menu mode.

< Key function for the Service Menu >

• [SHIFT] + [MENU]	① Move to Set Up Menu mode. ② Escape from Main menu on Service Menu mode.
• [SHIFT] + [FF][REW] (VTR1 and 2).	① Move to Service Menu mode from Set Up menu mode.
• [IN]	① Move to each Adjustment Menu (A00 to E00) from Main Menu.
• [OUT]	① Move to Main Menu from each Adjustment Menu.
• [DIAL] (JOG mode)	① Move the cursor " * " for select the each items.
• [SHIFT] + [DIAL]	① Change the adjustment value or select the selecting item. (Increase adjustment value by turn Search Dial to clockwise and decrease adjustment value by turn Search Dial to counter-clockwise.)
• [SHIFT] + [IN]/[OUT]	① Change the adjustment value or select the selecting item. (Increase adjustment value by press "SHIFT" + "OUT" button.) (Decrease adjustment value by press "SHIFT" + "IN" button.)

< Store the adjustment and setting value to the memory >

When the menu is escape from Adjustment menu after change the data, the each data are write to the memory.

< Default function >

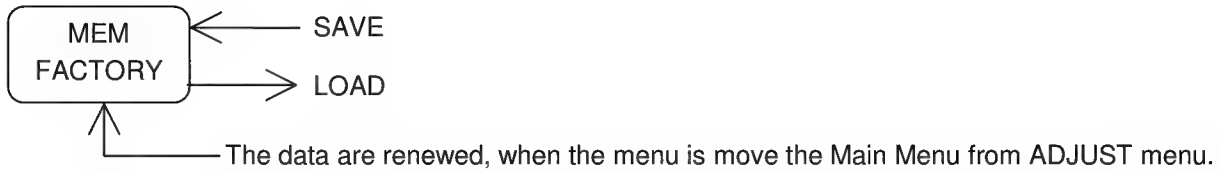
This menu have default function on the B00 : RF ADJUST, C00 : EQ ADJUST, C00 : EQ ADJUST (DV) and D00 : VIDEO ADUST menu.

Press "IN" button after select the item of DEFAULT, appear the message as indicated as below.

* DEFAULT SAVE EQ
DEFAULT LOAD EQ

Set the cursor " * " to SAVE or LOAD and press In button, then execute the program.

In case of press OUT button, cancel the command and return to ADJUST menu.



The AJ-LT85 have only one memory area for the service menu, the factory data is renewed without executed default function.

The previous value are displayed, when the LOAD function is executed after the value changed on the ADJUST menu.

A00 : SERVO ADJUST

No.	ITEM	SETTING VALUE	CONTENTS OF SETTING and ADJUSTMENT	REMARK
A01	T OFFSET	-128～**0**～127	Torque Command Offset Adj. of T REEL	
A02	S OFFSET	-128～**0**～127	Torque Command Offset adj. of S REEL	
A03	T TORQUE	-128～**0**～127	Correct the offset value of T REEL MOTOR DRIVE	
A04	S TORQUE	-128～**0**～127	Correct the offset value of S REEL MOTOR DRIVE	
A05	TENSION OFST	-128～**0**～127	Tension offset adj.	
A06	PG RISE CORS FINE	0～**4**～15 0～255	PG SHIFTER AUTO adj.	
A07	FILE CORS FINE	0～**4**～15 0～255	PG SHIFTER AUTO adj.	
A08	PB LINEAR P	0 1 ON	LISTA LINEARITY Adj. (PB HEAD) for DVCPRO	
A09	RP LINEAR P	0 1 ON	LISTA LINEARITY Adj. (RP HEAD) for DVCPRO	
A10	PB LINEAR P	0 1 ON	LISTA LINEARITY Adj. (RP HEAD) for DV	
A11	MOTOR CHECK	0 OFF 1 CAPS 2 DRUM 3 T REEL 4 S REEL	Check the motor operation.	
A12	PB GAIN P	-128～**-60**～127	LISTA SENSITIVITY adj. (PB HEAD) for DVCPRO	
A13	RP GAIN P	-128～**-52**～127	LISTA SENSITIVITY adj. (RP HEAD) for DVCPRO	
A14	RP GAIN	-128～**-52**～127	LISTA SENSITIVITY adj. (RP HEAD) for DV.	
A15	DVCAM ENA	0 OFF 1 ON	SELECT THE DVCAM FORIYAT CASSETTE	

B00 : RF ADJUST

NO	ITEM	SETTING VALUE	CONTENTS OF SETTING and ADJUSTMENT	REMARK
B01	REC CURR L	-128～**30**～+127	SETTING OF REC CURR （RP Lch）	Elec. Adj
B02	REC CURR R	-128～**30**～+127	SETTING OF REC CURR （RP Rch）	Elec. Adj
B03	REC FREQ L	-128～**50**～+127	SETTING OF REC FREQ （RP Lch）	Elec. Adj
B04	REC FREQ R	-128～**50**～+127	SETTING OF REC FREQ （RP Rch）	Elec. Adj
B05	RP PHASE L	-128～**0**～+127	RP Lch PLAYBACK PHASE CORRECTION	
B06	RP PHASE R	-128～**0**～+127	RP Rch PLAYBACK PHASE CORRECTION	
B07	PB PHASE L	-128～**0**～+127	PB Lch PLAYBACK PHASE CORRECTION	
B08	PB PHASE R	-128～**0**～+127	PB Rch PLAYBACK PHASE CORRECTION	
B09	RP MAG L	-128～**0**～+127	RP Lch PLAYBACK OUTPUT GAIN CORRECTION	
B10	RP MAG R	-128～**0**～+127	RP Rch PLAYBACK OUTPUT GAIN CORRECTION	
B11	PB MAG L	-128～**0**～+127	PB Lch PLAYBACK OUTPUT GAIN CORRECTION	
B12	PB MAG R	-128～**0**～+127	PB Rch PLAYBACK OUTPUT GAIN CORRECTION	
B13	TRACKING MOD	0 ATF 1 CTL	SELECTION OF TRACKING CONTROL MODE ＊ This function is only active on the service Menu mode.	
B14	TRACKING VAL	-128～**0**～+127 Initial: 0	" IN CASE OF SELECT THE CTL MODE ON ABOVE ITEM C20, TRACKING VALUE IS ADJUSTABLE" ＊ TRACKING VALUE RANGE DATA 0 - 116 : RELATIVE TO 1 TRACK THEREFORE 0 TO 127 IS RELATIVE TO JUST OVER 18	
B15	REC OPTIMAIZ	0 STOP 1 START		* NOT USED
B16	DEFAUT	0 LOAD 1 SAVE	LOAD THE LAST ADJUSTMENT VALUE SAVE THE ADJUSTMENT VALUE	

b00 : RF ADJUST (DV)

NO	ITEM	SETTING VALUE	CONTENTS OF SETTING and ADJUSTMENT	REMARK
b05	RP PHASE L	-128～**0**～+127	RP Lch PLAYBACK PHASE CORRECTION	
b06	RP PHASE R	-128～**0**～+127	RP Rch PLAYBACK PHASE CORRECTION	
b09	RP MAG L	-128～**-26**～+127	RP Lch PLAYBACK OUTPUT GAIN CORRECTION	
b10	RP MAG R	-128～**-26**～+127	RP Rch PLAYBACK OUTPUT GAIN CORRECTION	

C00 : EQ ADJUST

NO	ITEM	SETTING VALUE	CONTENTS OF SETTING and ADJUSTMENT	REMARK
C01	RP GAIN L	-128~**25**~+127	RP Lch EQ GAIN Adj.	Elec. Adj
C02	RP GAIN R	-128~**25**~+127	RP Rch EQ GAIN Adj.	Elec. Adj
C03	RP PHASE L	-128~**-60**~+127	RP Lch EQ PHASE Adj.	Elec. Adj
C04	RP PHASE R	-128~**-60**~+127	RP Rch EQ PHASE Adj.	Elec. Adj
C05	RP AEQ	-128~**76**~+127	RP AUTO EQ Adj.	Elec. Adj
C06	RP MAIN DL	-128~**-43**~+127	RP EQ DELAY LINE Adj.	Elec. Adj
C07	RP GAIN P	-128~**-52**~+127	＊NOTE: This item can not changed value.	
C08	RP PLL SLICE	-128~**42**~+127	RP PLL SLICE LEVEL Adj.	Elec. Adj
C09	RP PLL VCO	-128~**-26**~+127	RP PLL VCO Adj.	
C10	RP PLL PHASE	-128~**52**~+127	RP PLL PHASE Adj.	Elec. Adj
C11	PB GAIN L	-128~**25**~+127	PB Lch EQ GAIN Adj.	Elec. Adj
C12	PB GAIN R	-128~**25**~+127	PB Rch EQ GAIN Adj.	Elec. Adj
C13	PB PHASE L	-128~**-60**~+127	PB Lch EQ PHASE Adj.	Elec. Adj
C14	PB PHASE R	-128~**-60**~+127	PB Rch EQ PHASE Adj.	Elec. Adj
C15	PB AEQ	-128~**52**~+127	PB AUTO EQ Adj.	Elec. Adj
C16	PB MAIN DL	-128~**-43**~+127	PB EQ DELAY LINE Adj.	Elec. Adj
C17	PB GAIN P	-128~**-60**~+127	＊NOTE: This item can not changed value.	
C18	PB PLL SLICE	-128~**52**~+127	PB PLL SLICE LEVEL Adj.	Elec. Adj
C19	PB PLL VCO	-128~**-26**~+127	PB PLL VCO Adj.	
C20	PB PLL PHASE	-128~**-88**~+127	PB PLL PHASE Adj.	Elec. Adj
C21	VTB GAIN	-31~**-15**~+32	VITABI A/D INPUT LEVEL Adj.	Elec. Adj
C22	ECC MODE	0 ALL ON 1 OT OFF 2 AL OFF	ERROR CORRECTION INNER ON/OUTER ON ERROR CORRECTION INNER ON/OUTER OFF ERROR CORRECTION INNER OFF/OUTER OFF	
C23	CONCEAL MODE	0 ON 1 OFF	ERROR CONCEALMENT ON ERROR CONCEALEMENT OFF ※This CONCEAL MODE function is only effective, when the above ECC MODE set to “ALL ON”.	
C24	VITABI MODE	0 AUTO 1 ON 2 OFF	VITABI ON VITABI ON VITABI OFF	
C25	PB MODE	0 PB H 1 RP H	FORCED PB HEAD PLAYBACK FORCED RP HEAD PLAYBACK	
C26	ERROR MODE	0 FAST 1 SLOW	ERROR DISPLAY MODE “FAST” ERROR DISPLAY MODE “SLOW”	
C27	EQ AUTO ADJ	0 STOP 1 START	PB EQUALIZER AUTO Adj.	* NOT USED

C28	CLOCK NO.	0～63	SET THE VITERBI CLOCK NUMBER.	
C29	DEFAUT	0 LOAD 1 SAVE	LOAD THE LAST ADJUSTMENT VALUE SAVE THE ADJUSTMENT VALUE	

c00 : EQ ADJUST (DV)

NO	ITEM	SETTING VALUE	CONTENTS OF SETTING and ADJUSTMENT	REMARK
c11	PB GAIN L	-128～**-26**～+127	PB Lch EQ GAIN Adj.	Elec. Adj
c12	PB GAIN R	-128～**-26**～+127	PB Rch EQ GAIN Adj.	Elec. Adj
c13	PB PHASE L	-128～**-70**～+127	PB Lch EQ PHASE Adj.	Elec. Adj
c14	PB PHASE R	-128～**-70**～+127	PB Rch EQ PHASE Adj.	Elec. Adj
c15	PB AEQ	-128～**34**～+127	PB AUTO EQ Adj.	Elec. Adj
c16	PB MAIN DL	-128～**-48**～+127	PB EQ DELAY LINE Adj.	Elec. Adj
c17	RP GAIN P	-128～**68**～+127	LISTA SENSITIVITY Adj.	
c18	PB PLL SLICE	-128～**52**～+127	PB PLL SLICE LEVEL Adj.	Elec. Adj
c19	PB PLL VCO	-128～**-26**～+127	PB PLL VCO Adj.	
c20	PB PLL PHASE	-128～**-88**～+127	PB PLL PHASE Adj.	Elec. Adj
c21	VTB GAIN	-31～**-15**～+32	VITABI A/D INPUT LEVEL Adj.	Elec. Adj
c22	ECC MODE	0 ALL ON 1 OT OFF 2 AL OFF	ERROR CORRECTION INNER ON/OUTER ON ERROR CORRECTION INNER ON/OUTER OFF ERROR CORRECTION INNER OFF/OUTER OFF	
c23	CONCEAL MODE	0 ON 1 OFF	ERROR CONCEALMENT ON ERROR CONCEALEMENT OFF ※This CONCEAL MODE function is only effective, when the above ECC MODE set to “ALL ON”.	
c24	VITABI MODE	0 AUTO 1 ON 2 OFF	VITABI ON VITABI ON VITABI OFF	
c25	PB MODE	0 PB H 1 RP H	FORCED PB HEAD PLAYBACK FORCED RP HEAD PLAYBACK	
c26	ERROR MODE	0 FAST 1 SLOW	ERROR DISPLAY MODE “FAST” ERROR DISPLAY MODE “SLOW”	
c27	EQ AUTO ADJ	0 STOP 1 START	PB EQUALIZER AUTO Adj.	* NOT USED

D00 : VIDEO ADJUST

NO	ITEM	SETTING VALUE	CONTENTS OF SETTING and ADJUSTMENT	REMARK
D01	PR BAL	-128～**0**～+127	SETTING PR BALANCE OF VIDEO OUTPUT	
D02	PB BAL	-128～**0**～+127	SETTING PB BALANCE OF VIDEO OUTPUT	
D03	SET UP OFST	-128～**-60**～+127	SETING OF SET UP LEVEL	※Only NTSC
D04	V LEV OFST	-128～**-28**～+127	SETTING OF VIDEO OUTPUT LEVEL	
D05	HUE OFST	-128～**0**～+127	SETTING HUE OFFSET BALUE OF VIDEO OUTPUT	
D06	REC PR BAL	-128～**-28**～+127	SETTING OF REC PR LEVEL	
D07	REC PB BAL	-128～**-28**～+127	SETTING OF REC PB LEVEL	
D08	Y CLAMP DC	-128～**50**～+127	SETTING VOLTAGE OF RECORDING Y CLAMP	
D09	CPS Y LEV	-128～**-40**～+127	SETTING OF RECORDING Y LEVEL	
D10	AXIS	-128～**0**～+127	SETTING OF RECORDING CHROMA PHASE	
D11	C LEV	-128～**25**～+127	SETTING OF RECORDING CHROMA LEVEL	
D12	CPN Y LEV	-128～**0**～+127	SETTING OF COMPONENT Y LEVEL (PAL)	※NOT USED
D13	SCH	-128～**0**～+127	SETTING OF SCH	
D14	S CH P	-128～**0**～+127	SETTING OF SCH PHASE	※NOT USED
D15	REC PR LEV	-128～**0**～+127	SETTING OF RECORDING PR LEVEL	※NOT USED
D16	REC PB LEV	-128～**0**～+127	SETTING OF RECORDING PB LEVEL	※NOT USED
D17	SYNC 0	-128～**0**～+127	SET THE VIDEO PHASE OF RECORDING SIGNAL	※NOT USED
D18	BLC DC	-128～**0**～+127	SET THE BLANKING LEVEL OF PLAYBACK SIGNAL	※NOT USED
D19	PR OUT LEV	-128～**0**～+127	SET THE PR LEVEL OF PLAYBACK SIGNAL	※NOT USED
D20	PB OUT LEV	-128～**0**～+127	SET THE PB LEVEL OF PLAYBACK SIGNAL	※NOT USED
D21	C DELAY	-128～**0**～+127	SET THE CHROMA DELAY QUANTITY OF PB SIGNAL	※NOT USED
D22	SET UP ADD	-128～**14**～+127	SET THE SET UP LEVEL on SET UP ADD condition	※Only NTSC
D23	V LEV ADD	-128～**-77**～+127	SET THE VIDEO LEVEL on SET UP ADD condition	※Only NTSC
D24	Y CLAMP CUT	-128～**-69**～+127	SET THE LEVEL on SET UP CUT condition	※Only NTSC
D25	C LEV CUT	-128～**-82**～+127	SET THE CHAROHA LEVEL on SET UP CUT condition	※Only NTSC
D26	CPS LEV CUT	-128～**-30**～+127	SET THE Y LEVEL on SET UP CUT condition	※Only NTSC
D27	V SET UP	0 OFF 1 ON	Select the display V IN SET UP and V OUT SET UP on the SET UP menu	※Only NTSC
D28	DEFAULT	0 SAVE 1 LOAD	SAVE THE ADJUSTMENT VALUE LOAD THE LAST ADJUSTMENT VALUE	

E00 : SYSTEM ADJUST

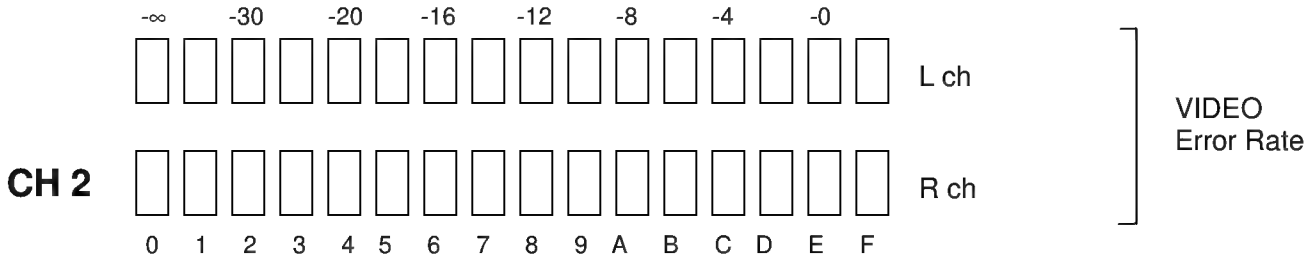
NO	ITEM	SETTING VALUE	CONTENTS OF SETTING and ADJUSTMENT	REMARK
E01	DOLBY NR	0 ON 1 OFF	SETTING OF DORBY NR	
E02	UNDER CUT ADJ FINE	0～**2**～7 0～**64**～255	ADJUST THE UNDER CUT VOLTAGE [OPERATION] 1. PRESS THE "SHIFT" + "IN" BUTTON. 2. MEMORIZED ADJUSTMENT VALUE, WHEN RELEASE THE "SHIFT" + "IN" BUTTON.	※Response Only VTR1.
E03	LCD COLOUR	-60～**0**～+60 INITIAL : 0	ADJUSTMENT OF LCD COLOUR	
E04	LCD HUE	-60～**0**～+60 INITIAL : 0	ADJUSTMENT OF LCD HUE	
E05	LCD CONT	-60～**0**～+60 INITIAL : 0	ADJUSTMENT OF LCD CONTRAST	
E06	LCD B LIGHT	-60～**0**～+60 INITIAL : 0	ADJUSTMENT OF LCD BACK LIGHT	
E07	S PHOTO		CONFIRMATION OF THE SENSITIVITY OF S PHOTO SENSOR **NOTE:** ADJUSTMENT VALUE (VOLTAGE) DISPLAYED	
E08	T PHOTO		CONFIRMATION OF THE SENSITIVITY OF T PHOTO SENSOR **NOTE:** ADJUSTMENT VALUE (VOLTAGE) DISPLAYED	
E09	MID M CAS	0 OFF 1 START	MOVE THE CASSETTE HOLDER TO MIDDLE (SENSOR) POSITION OF FRONT LOADING UNIT.	
E10	AUD VCO CHK	0 OFF 1 48KHz 2 44KHz 3 32KHz	SELECT THE ADJUSTMENT MODE OF SAMPLING FREQUENCY OF AUDIO	

6. Error Rate Display Procedure

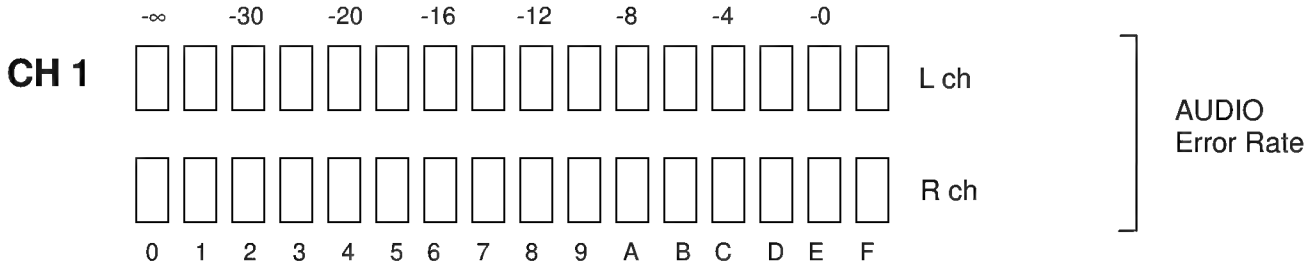
There are 2 ways to display the error rate as follows,

*Display procedure without opening the service menu. (During normal operation)

1. Set the REMOTE/LOCAL SW to REMOTE side.
2. Press IN + OUT button of VTR1 side and press IN button of VTR2 side altogether so that the Audio Level Meter changes into the VIDEO Error Rate Display.



3. Press OUT button of VTR1 side and press IN + OUT button of VTR2 side altogether so that the so that the Audio Level Meter changes into the AUDIO Error Rate Display.



*Display procedure with opening the service menu. (During servicing)

1. Press ENTER/SHIFT + EDIT button of VTR1 side so that the User Set Up Menu is opened.
2. Press ENTER/SHIFT + FF + REW button of VTR1 side so that the Service Menu is opened.
3. Select C00 (c00) : EQ ADJUST by Jog Dial and press IN button of VTR1 side so that the Audio Level Meter changes into the VIDEO Error Rate Display automatically.
4. Open the Service Menu of VTR2 side using same procedure as VTR1.

Note: Open the EQ ADJUST Menu of VTR1 when confirm the VTR2 error rate.

How to confirm the Error Rate

Set the item on EQ ADJUST menu as shown below

MENU		DVC PRO (PB)	DV (R/P)
C22	ECC MODE	AL OFF	AL OFF
C23	CONCEALMODE	AFF	OFF
C24	VITABI MODE	AUTO	ON
C25	PB MODE	PB H	RP H
C26	ERROR MODE	SLOW	SLOW

Note: With above contents set automatically, when set the error rate display mode during normal operation.

※ Please refer to condition of the error rate follow the tape format and VTR mode, indicated as below.

	VTR mode	Standard of Error Rate
DVCPRO (PB)	Alignment tape playback	Under the “6” position at level meter
DV (R/P)	Alignment tape playback	Under the “D” position at level meter

7. Adjustment Items After Exchange the Major P. C. Board

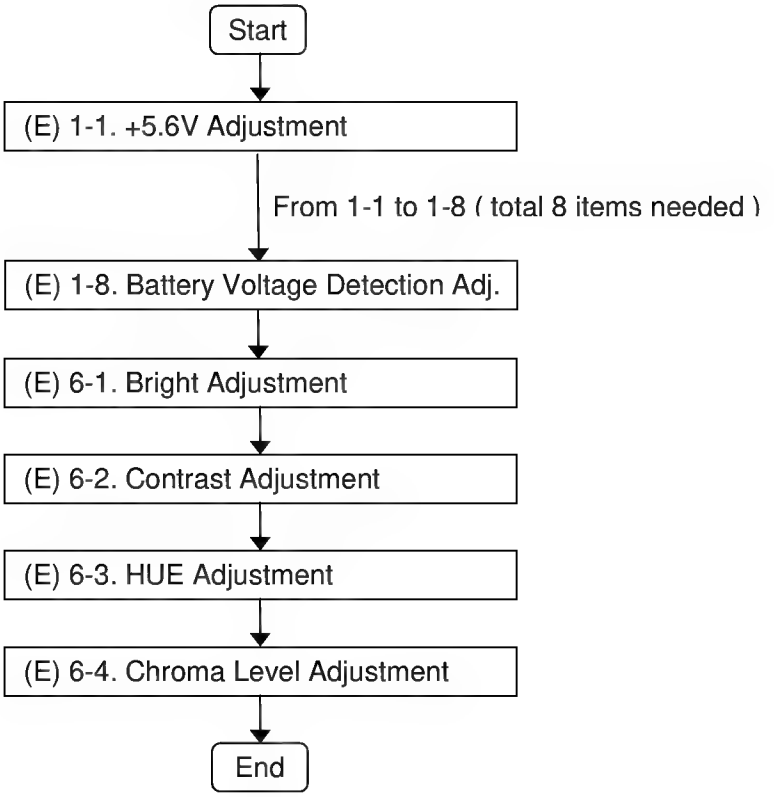
P. C. Board	Adjustment	Remarks
DD CONV 1, 2	YES	Minor adj. necessary
SERVO	YES	Regular adj. necessary by Digital Board
DIGITAL 1, 2	YES	Difficult to do exchange, because major adj. needed
ANALOG 1, 2	YES	Difficult to do exchange, because major adj. needed
RF AMP	YES	REC Current Adj. necessary
AV SYSCON	YES	Minor adj. Necessary
KEY BOARD	NO	
DISPLAY CONTROL	NO	
DISPLAY	YES	Minor adj. Necessary
LCD CONTROL R, L	NO	
ENCODER VR R, L	NO	

* The following flowchart number is adjustment number of the service manual.
* (E) is for electrical adjustment, (M) is for mechanical adjustment.
* If there is a PROM on the P. C. Board, please confirm the software version. Please refer to the Operating Instructions or section 4 of Service Manual.
* There is a data RAM (IC2) on the Keyboard. Please remove the IC2 and put it to the new keyboard or please write down all of user data and service data before exchange the Keyboard and input the data to the new data RAM. When input the data to the new RAM, hour meter information will be reset.

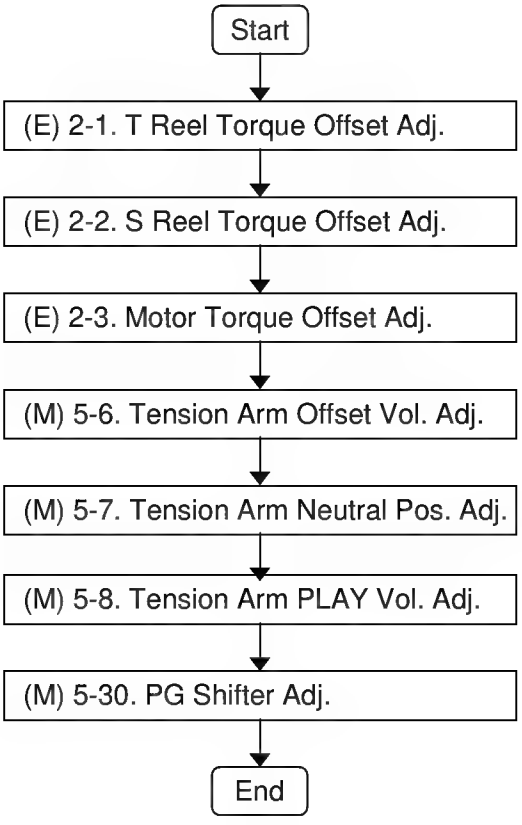
PROM Reference Number

VTR1	VTR2
DISPLAY IC1 (DISPLAY CONT)	KEYBOAD IC1 (KEYBOARD)
AV SYSCON IC102 (SYSCON)	AV SYSCON IC802 (SYSCON)
SBC IC1201 (DIGITAL 1)	SBC IC1601, 1501 (DIGITAL 2)
CYLINDER IC101 (SERVO)	CYLINDER IC101 (SERVO)
REEL IC201 (SERVO)	REEL IC201 (SERVO)

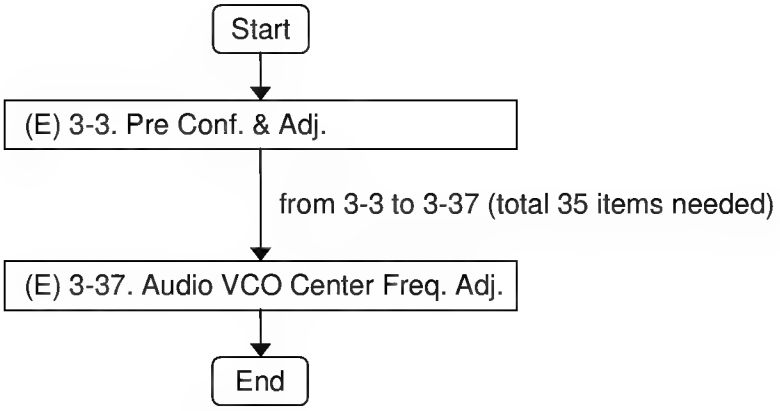
■ **DD CONV. 1, 2 P. C. Board**


Start
(E) 1-1. +5.6V Adjustment
From 1-1 to 1-8 (total 8 items needed)
(E) 1-8. Battery Voltage Detection Adj.
(E) 6-1. Bright Adjustment
(E) 6-2. Contrast Adjustment
(E) 6-3. HUE Adjustment
(E) 6-4. Chroma Level Adjustment
End

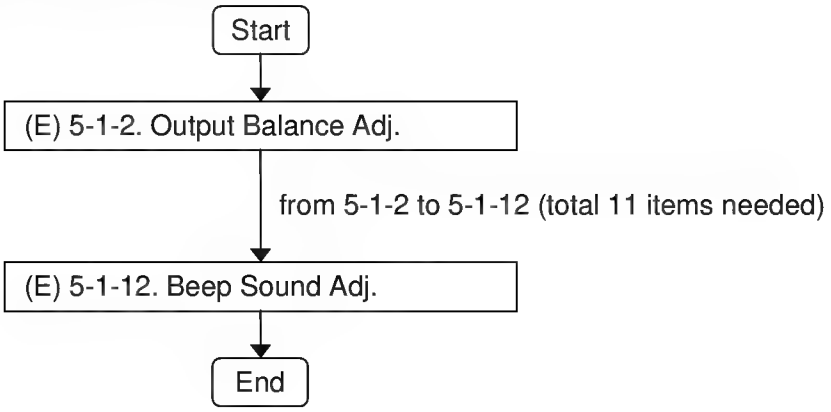
■ **SERVO P. C. Board**


Start
(E) 2-1. T Reel Torque Offset Adj.
(E) 2-2. S Reel Torque Offset Adj.
(E) 2-3. Motor Torque Offset Adj.
(M) 5-6. Tension Arm Offset Vol. Adj.
(M) 5-7. Tension Arm Neutral Pos. Adj.
(M) 5-8. Tension Arm PLAY Vol. Adj.
(M) 5-30. PG Shifter Adj.
End

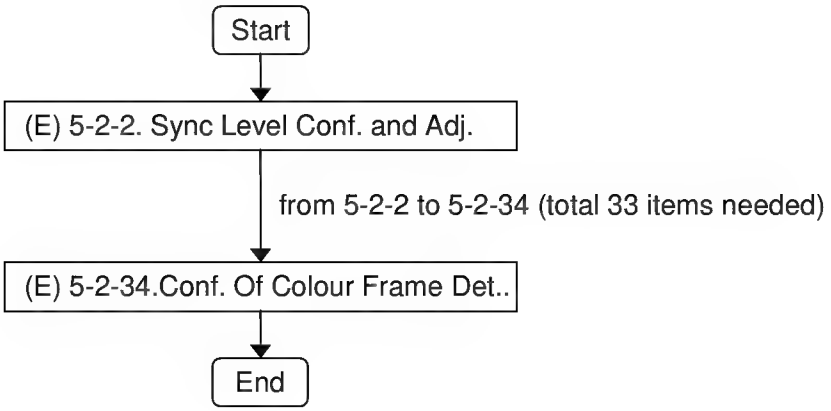
■ **DIGITAL 1, 2 P. C. Board**



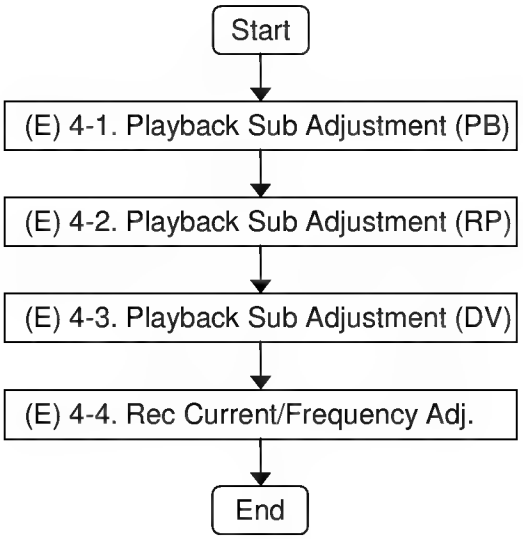
■ **ANALOG 1, 2 P. C. Board (Audio Section)**



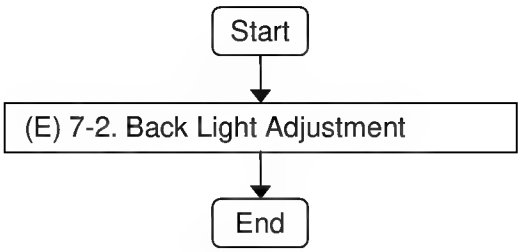
■ **ANALOG 1, 2 P. C. Board (Video Section)**



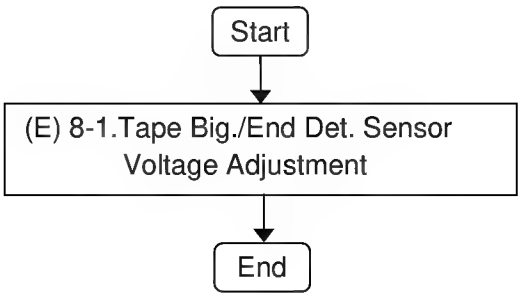
■ **RF AMP P. C. Board**


Start
(E) 4-1. Playback Sub Adjustment (PB)
(E) 4-2. Playback Sub Adjustment (RP)
(E) 4-3. Playback Sub Adjustment (DV)
(E) 4-4. Rec Current/Frequency Adj.
End

■ **DISPLAY P. C. Board**



■ **AV SYSCON P. C. Board**



8.FLASH ROM VERSION UP PROCEDURE

1. FLASH ROM VERSION UP REQUIREMENT.
   - Flash rom version up software (VFK1248A)
   - Rom Rewriter (VFK1304A)
   - WINDOWS Ver. 3.1 or WINDOWS 95 built in personal computer
   - RS-232C cable (cross)

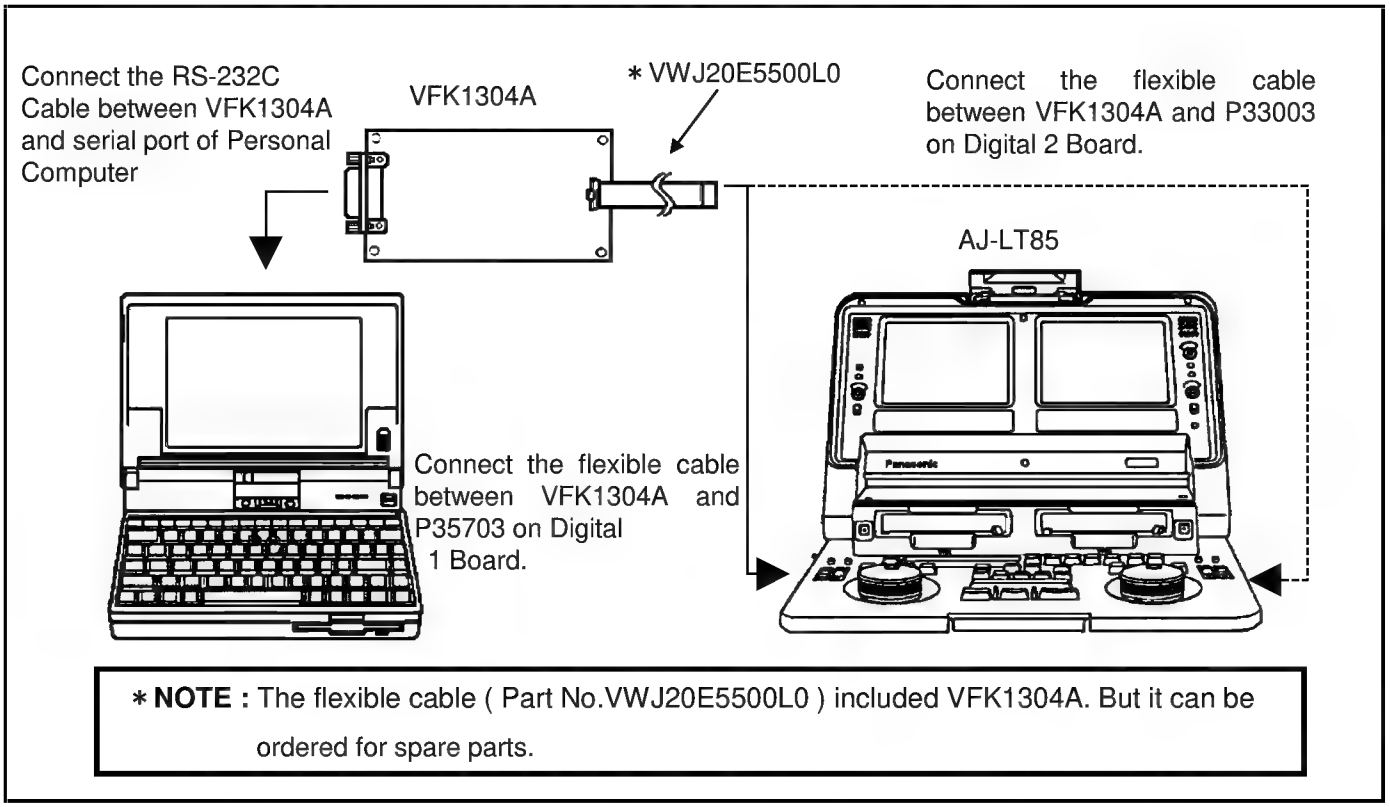
   Note : · · The VFK1304A is designed cross type specification of 9P RS232C cables.
   · · If you want to use the RS232C straight cables, please remove the resistor R3 and R4. And those
   · · resistors are install to pattern of R1 and R2.

2. INSTALL THE FLASH ROM VERSION UP SOFTWARE
   - Copy the following files to WINDOWS Ver. 3.1 or WINDOWS 95 built in personal computer.

     VSI2312A.EXE (PROGRAM FILE)
     VSI2312A.INI (INITIAL FILE)

3. LOADING METHOD OF FLASH ROM VERSION UP SOFTWARE
   1) When using the WINDOWS Ver. 3.1 built in personal computer.
      · · Load the file manager and double click the VSI2312A.EXE file.
      · · Resistor the VSI2312A.EXE file to icon and double click it.
   2) When using the WINDOWS 95 built in personal computer.
      · · Load the explorer and double click the VSI2312A.EXE file.
      · · Make the short cut of VSI2312A.EXE file and double click it.

4. CONNECTION OF ROM REWRITER.
   Please connect the Rom Rewriter after turn off the power switch on AJ-LT85.


Connect the RS-232C Cable between VFK1304A and serial port of Personal Computer
VFK1304A
* VWJ20E5500L0
Connect the flexible cable between VFK1304A and P33003 on Digital 2 Board.
AJ-LT85
Connect the flexible cable between VFK1304A and P35703 on Digital 1 Board.

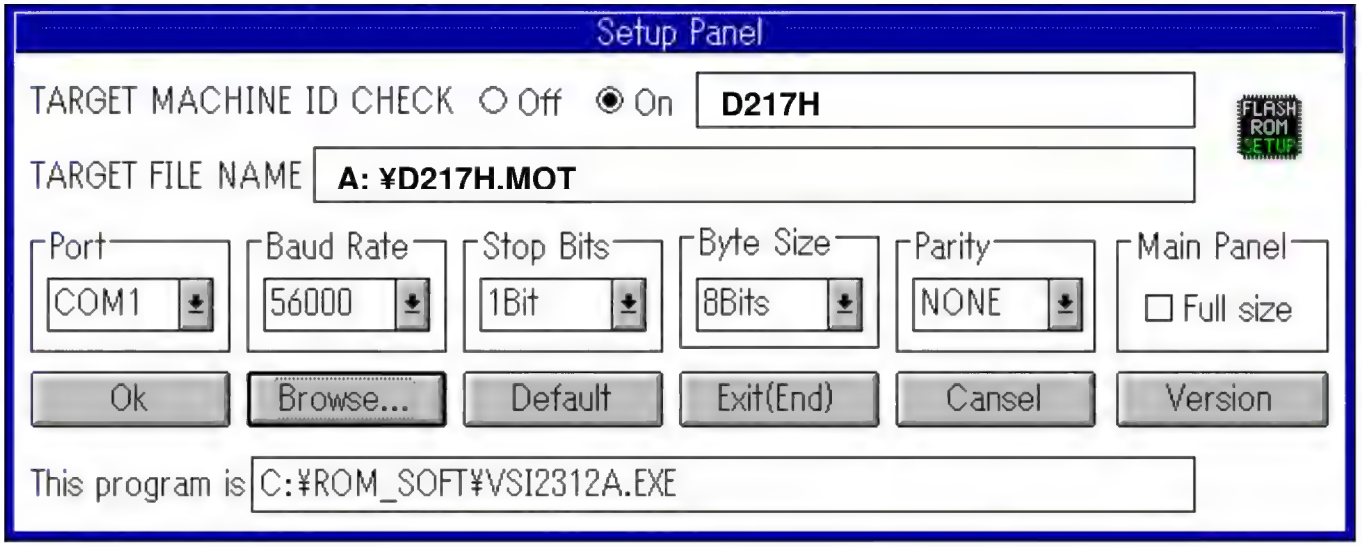
*** NOTE :** The flexible cable (Part No.VWJ20E5500L0) included VFK1304A. But it can be ordered for spare parts.

5. FLASH ROM VERSION UP PROCEDURE

(1) Connect the Rom Writer (VFK1304A) to LT85 and personal computer after turn off the power switch on AJ-LT85

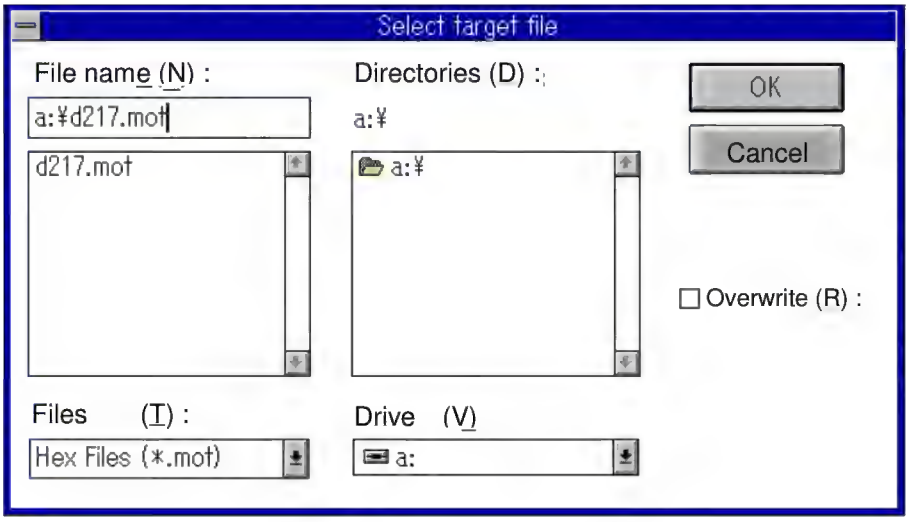
(2) Set the pin 1 and 2 of Dip Switch on the P.C.Board (VFK1304A) to ON position.

(3) Load the flash rom version up software. Then the following window is opened.



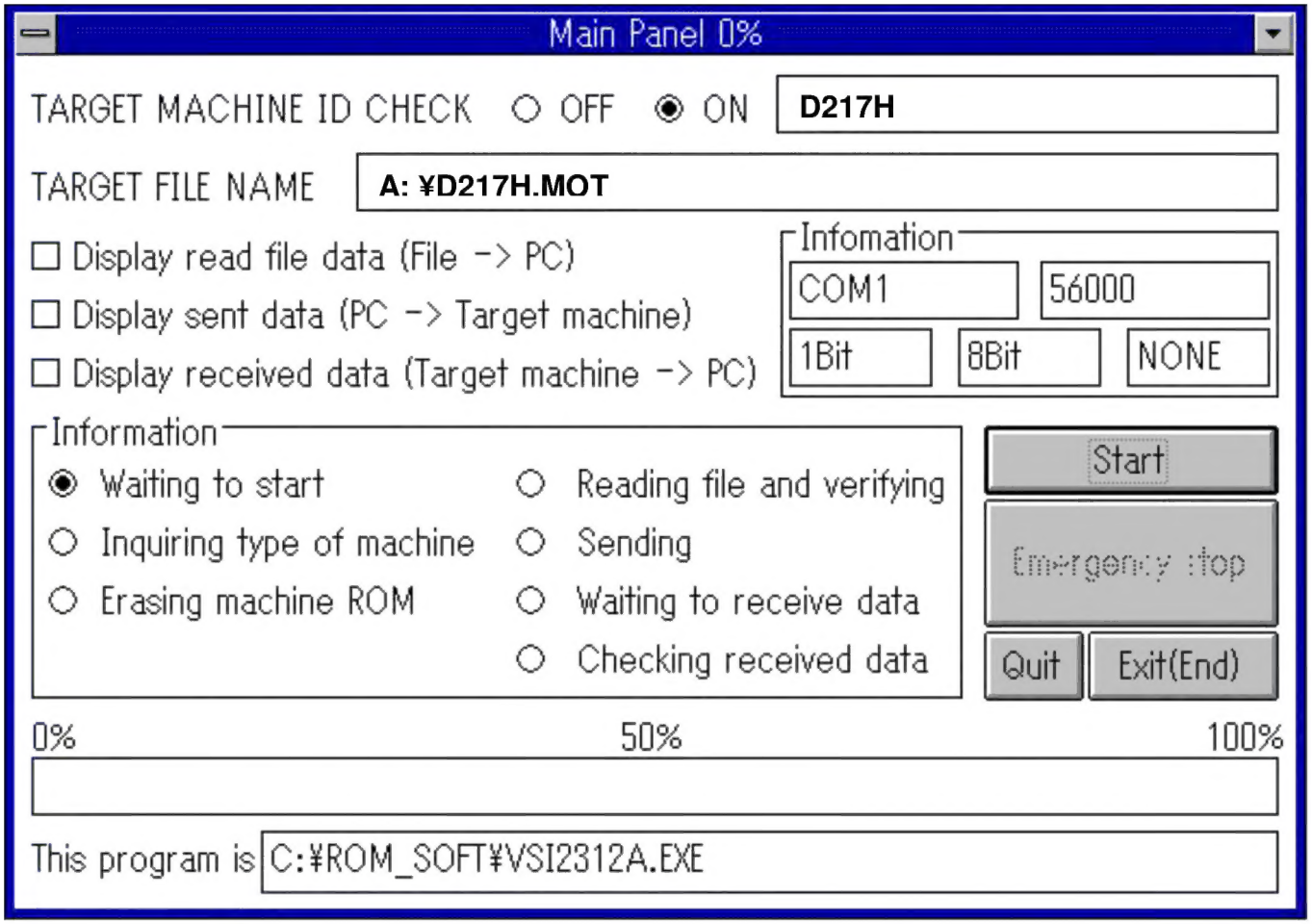
(4) Set the following setting on the Set Up Panel. Please type capital letter.

- TARGET MACHINE ID CHECK ---> On, D217H
- TARGET FILE NAME ---> Set the new software file name with full pass or click the Browse button and select the new file. (When click the Browse button, the following window is opened.)
- Port ---> Set the personal computer COM port No.
- Baud Rate ---> Baud Rate can be set 56000 and 19200 only. In case of set to 19200, set the pin 2 of Dip-Switch to OFF position on the P.C.Board (VFK1304A).

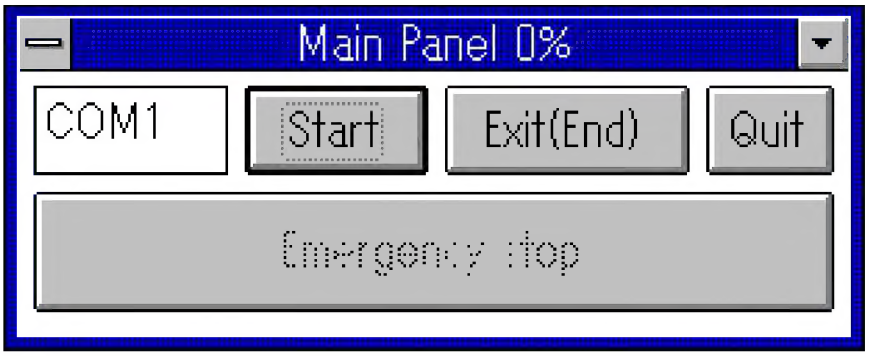


(5) Set the Main Panel setting and then click the OK button. Main Panel is opened.

- Main Panel ---> When select the full size of Main Panel, the following window is opened. Full size Main Panel can indicate the detail information of machine status.
  However it takes more time to complete the version up at the full size main Panel in comparison with small size Main Panel.



- Main Panel ---> When select the small size of Main Panel, the following window is opened.



We recommend the Main Panel setting to full size.

(6) Turn on the power switch on AJ-LT85. And confirm that the LCD is displayed abnormal. (It only occurred version up side of VTR.)

(7) If the LCD is displayed normally, if occurred connection error.
Please confirm the connection between AJ-LT85, rom rewriter and personal computer after turn off the power switch on AJ-LT85.

(8) Click the OK button on the Main Panel. Rewrite the new software to flash rom after erase the flash rom. When you selected the full size Main Panel, you can confirm the detail information of machine status. When you selected the small size Main Panel, you can confirm the machine status (percentage) at title bar.

Note: ・・It takes about 1 minute to erase flash memory.

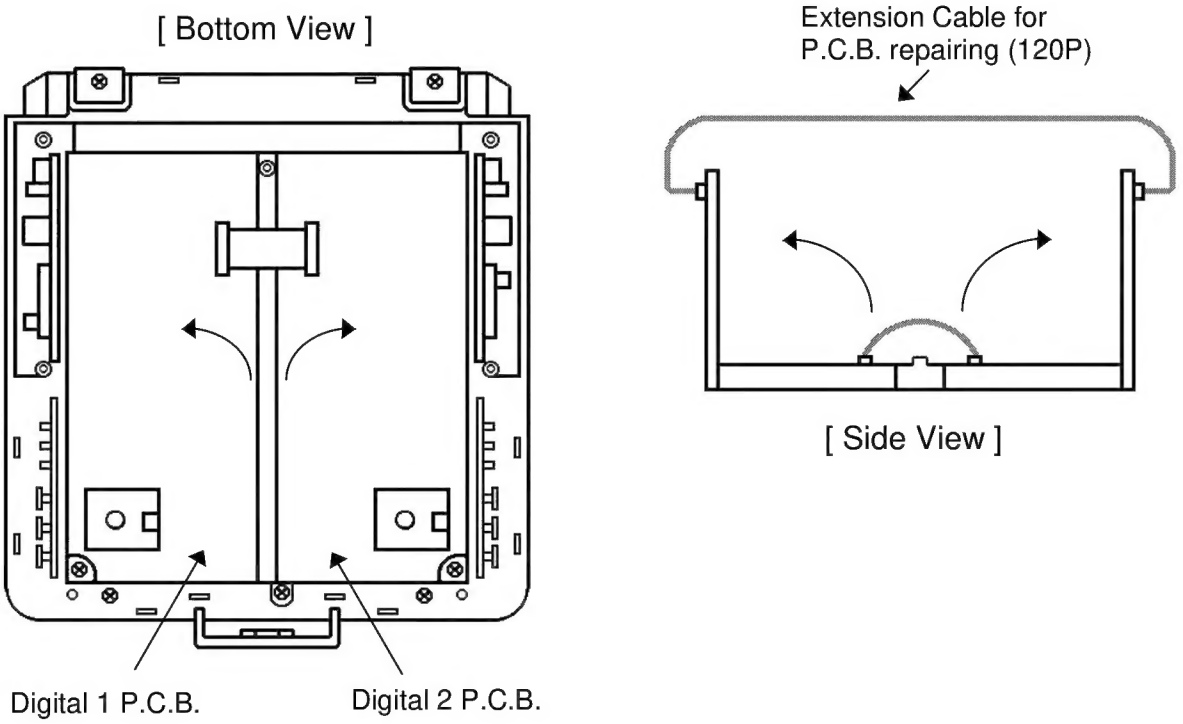
(9) In case of no erasing or no writing when “Inquiring type of machine” on the full size Main Panel, check the RS-232C communication or TARGET MACHINE TYPE.

(10) After finish the version up, please confirm the display of AV STS software version on the LCD. Turn the power switch to off and disconnect the Rom rewriter (VFK1304A) from the LT85.

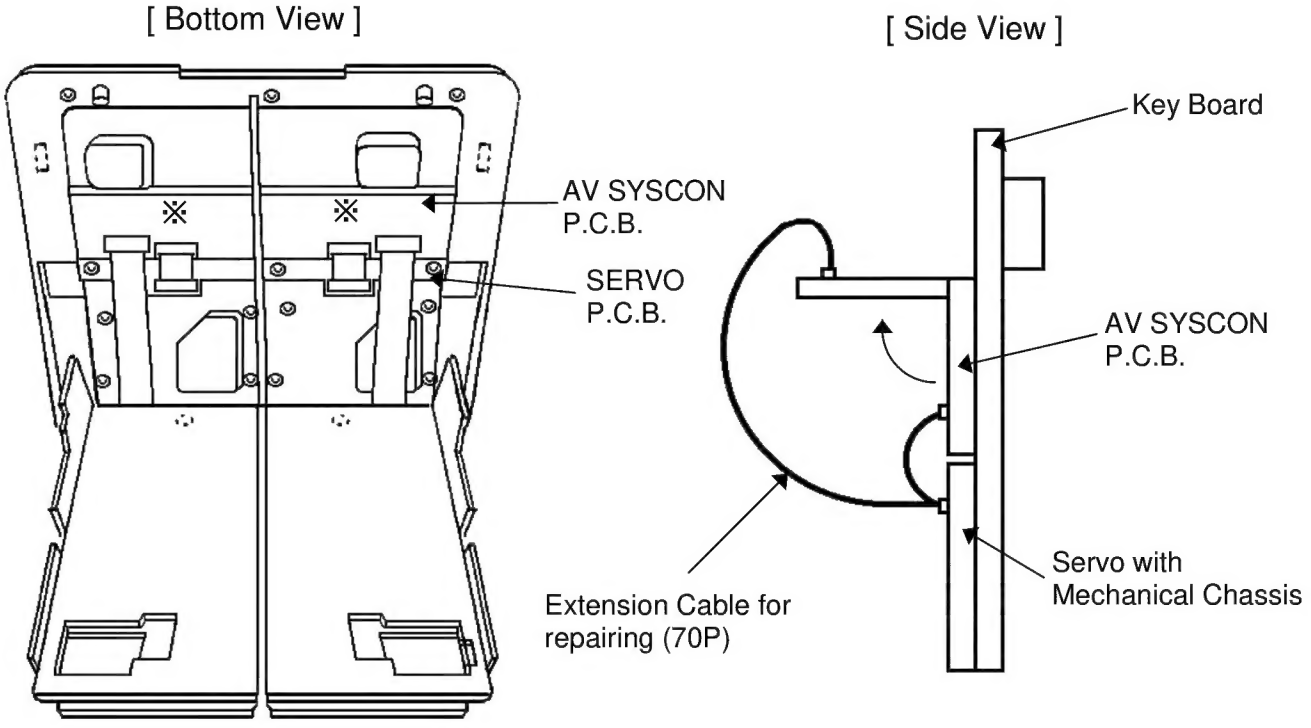
9.HOW TO USE THE EXTENSIOIN CABLE

The AJ-LT85 use 3 kinds of extension cable for repair the some P.C.Board.

1. 120P EXTENDER (VFK1305)
   ·The VFK1305 is connect Digital 1 and Digital 2 P.C.Board.

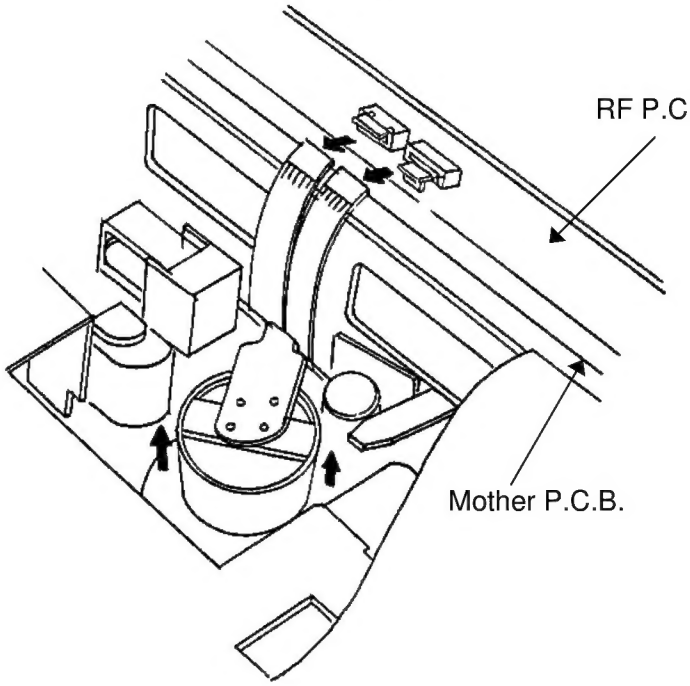


2. 70P EXTENDER (VFK1307)
   ·The VFK1307 is connect AV SYSCON and SERVO P.C.Board.



3. 52P EXTENDER (VFK1306)
・The VFK1307 is connect MOTHER and RF AMP P.C.Board.

[Top View]



[Side View]